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ORGANIZATIONAL CHANGE AND VESTED INTERESTS

George W.J. Hendrikse^{*}

Abstract

The nature of organizational change and the value of headquarters is derived from a model with costs of delay, vested interests and costs of organizational change. The value of headquarters is derived from imposed organizational change. It is viewed as an institution which is able to prevent surplus reducing endogenous commitment. Imposed organizational change is predicted in circumstances where the desired change is not urgent, the loss of accepting lower offers than in the past is above a certain level, and the costs of imposed change are lower than the costs of delay. Delay occurs and change will be voluntary in these circumstances when the situation is not perceived as urgent and costs of imposed change are high. Voluntary organizational change occurs immediately when the desired change is perceived to be urgent. Case studies are presented along these lines of thought.

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ORGANIZATIONAL CHANGE AND VESTED INTERESTS

1 Introduction

Organizational change is a recurring phenomenon. Popular press accounts report frequently about mergers, divestitures, replacements of CEO's, organizational restructuring, and so on. A puzzling feature of these organizational changes is why they often require huge amounts of resources, even when everybody knows and is aware that a change could in principle be realized at negligible costs. Why did Apple and IBM take their brightest engineers outside the existing organizations and place them in a far away, new laboratory to work on the next generation of computers? Why are new departments created in an university when the same new courses could have been offered within the existing structure?

A second key aspect of restructuring enterprises is the timing of its implementation. It is observed that there are many situations in which considerable delay occurs in actually implementing a desirable organizational change. Jensen (1993) provides many examples. He estimates for General Motors 'an opportunity loss of over \$ 100 billion in its R&D and capital expenditure program over the eleven-year period 1980 to 1990' in postponing desirable changes. However, there are also several examples in which organizational change seems to have taken place without (much) delay. Examples are General Electric, General Dynamics and Sealed Air (Jensen, 1993).

A third puzzling aspect regarding organizational change is that all the involved parties acknowledge after the implementation that everybody knew already that something had to be changed. Postrel and Rumelt (1992, p398) observe

'Why is organizational change so difficult? In particular, why is it so difficult for firms to imitate best practice **even after it has been recognized for a considerable time?**'

A common starting point for analysing the above phenomena is nowadays formed by models featuring a conflict of interest and asymmetric information. Principal-agent and transaction costs analyses are prominent examples. This paper maintains the feature of a conflict of interest, but abandones the ingredient of asymmetric information. A model is presented with complete information, costs of organizational change, costs of delay,

endogenous commitment and a deadline. The fruits of organizational change have to be divided between two local parties, e.g. employees or business units. There is a common interest to realize the benefits of organizational change in the sense of having a pie which is as large as possible. There is an element of conflict because each party tries to get a share of the pie which is as large as possible. It is assumed that there is a third party, called headquarters. They decide whether organizational change will be imposed by them or left to the local parties. Headquarters is endowed with the power to either prevent the manoeuvring for individual shares by imposing organizational change or to allow voluntary organizational change to be reached by the two local parties (which may involve delay). Imposed organizational change comes at a cost C . Examples are dulled motivation of and/or resistance against such a change, dynamic economies of scale lost in changing job assignments, and costs of organizational structure changes.

Voluntary organizational change is represented by an alternating offer bargaining game of complete information with a deadline and endogenous commitment. The deadline entails that the benefits of organizational change evaporate when the parties don't come to an agreement before the deadline. It represents that organizational change can not be postponed indefinitely, i.e. external pressures create a deadline in internal bargaining processes. Endogenous commitment is interpreted as a vested interest. It reflects the empirical observation that the history of the bargaining process is important in determining a negotiators' prestige. The negotiator will suffer a loss of reputation when he accepts an offer which is worse than the best (public) offer which has been received in the past. This feature is modelled by the notion of endogenous commitment in the form of non-stationarity of the bargaining process, i.e. it is assumed that a proposal is not accepted when its terms are worse than the best offer which has been received in the past.

The deadline and endogenous commitment may result in delay in reaching an agreement. Delay is costly because it reduces the pie to be shared between the two parties. It is modelled by a discount factor, which may represent either the pressure from capital or product markets, the strength of the internal control system, or the perception of the urgency of the situation by the local parties. Delay may occur despite its associated costs because the proposer in the first period may have to offer such a high share to the other party in order to get immediate acceptance that delay is preferred. Delay emerges by offering a too small share to the other party. The most attractive proposal for the proposer to get delay is to offer the responder a share 0, because this prevents that a vested interest (endogenous commitment) is built up. This proposal will be rejected by the other party in the first period. The extra

benefits of reaching an immediate agreement are not sufficient in these circumstances to compensate the proposer of the first period for his disadvantageous position in the second period due to the endogenous commitment aspect of his first period proposal. The proposer claims the whole surplus in order to prevent that a vested interest for the other party is created. The parties move to the second period and reach agreement.

It is shown that organizational change can be of three types. It will be either voluntary and delayed, or immediate and imposed, or immediate and voluntary. It will be delayed when the desired change is not perceived as being urgent and the loss of accepting lower offers than in the past is above a certain level, whereas the costs of immediate organizational change are high. The involved parties formulate unacceptable proposals for each other in order to prevent that a more reasonable proposal will create a favorable endogenous commitment for the other party. Immediate change which is desirable for the whole organization is thereby postponed. The second possibility is that organizational change is immediate and imposed by headquarters. The benefits of preventing the development of an unfavorable bargaining position outweighs the costs of delay for the directly involved parties when there is not much urgency with respect to organizational change and reputation loss of accepting lower offers than in the past is above a certain level. However, delay will be prevented in this situation by headquarters by an imposed organizational change when the costs of the change are lower than the costs of delay. The value of headquarters is that it is able to impose organizational change in order to break endogenous commitments. The third possibility is immediate voluntary organizational change. It occurs when the desired change is urgent. Figure 1 summarizes these results.

| Urgency | Costs of imposed change | low | high |
|---------|-------------------------|------------------|------------------|
| | High | Voluntary change | Voluntary change |
| | Low | Imposed change | Delay |

Figure 1: Organizational change, urgency and costs of imposed change

Another way of characterizing our results is to formulate them in terms of the value added by headquarters. There is no role for headquarters in the above model when the situation is urgent or the loss of reputation is low, because the local parties know that delay would be very costly. The response of the local parties is to adopt a policy of change

voluntarily and immediately. Headquarters also doesn't add value when the situation is not urgent and the costs of an imposed organizational change are high. Delay is costly, but preventing it is even more costly. Organizational change will therefore not be imposed and delay will occur. The only situation in which headquarters adds value is when the desirability of change is not perceived by the local parties as being urgent, the reputation loss is above a certain level, and the costs of imposed organizational change are low. Value is created by breaking inefficient endogenous commitments.

This article can be positioned in the management and economics literature in several ways. Rumelt et.al. (1994) characterize the field of strategic management by five research questions:

- How do firms behave?
- Why are firms different?
- What are the functions of headquarters in a multibusiness firm?
- What determines success or failure in international competition?
- Why are organizations so resistant to change?

This article addresses explicitly the third and fifth questions of the research agenda of the field of strategic management. The function of headquarters that will be stressed is the creation of value by preventing that harmful positions are chosen by local parties in the negotiation process about a desirable organizational change. Organizations are resistant to change when costs associated with this policy are high compared to the costs of delay. Hypotheses are formulated regarding the circumstances in which this is expected to happen.

A second way of positioning this article is to view it as a contribution to the Coase program. The celebrated Coase theorem (1960) states that every assignment of property rights results in a Pareto efficient allocation in the absence of bargaining inefficiencies and wealth constraints. The implied research agenda is that a fruitful starting point for research on organizations is the investigation of the assumptions of efficient bargaining and no wealth constraints. This paper addresses a particular relaxation of the efficient bargaining assumption. The usual assumption of stationarity of the bargaining process is relaxed. Later bargaining periods are not anymore necessarily identical to (or independent of) earlier bargaining periods, because current proposals influence the payoff structure in future bargaining periods. History matters because the rejection of a proposal by a player can not be followed by an acceptance of a worse proposal in the future by the same player without a loss (of reputation). (Inefficient)

delay may be the result. Endogenous commitment does therefore not only have a distributional effect, but also a real effect in reducing the surplus which will be divided. A role for the institution of headquarters emerges. It may be able to diminish the reduction of the available surplus by breaking endogenous commitments.

Strategic management research is often distinguished between a process or content orientation. Chakravarthy and Doz (1992) characterize the difference by that 'The latter subfield focuses exclusively on what strategic positions of the firm lead to optimal performance under varying environmental contexts. In contrast, strategy process research is concerned with how a firms's administrative systems and decision processes influence its strategic positions.' Our model can be viewed as a contribution to the process oriented branch of the strategic management literature. More specifically, it focusses on bargaining problems in decision processes.

Finally, the model can be viewed as endogenously deriving whether the nature of organizational change will be top-down or bottom-up. Top-down change is predicted in circumstances which are perceived as not urgent, entail at least some loss of prestige of local negotiators in the bargaining process when offers are accepted which are lower than the highest offer in the past and the costs of imposed organizational change don't exceed the reduction in surplus due to delay. All other situations will face bottom-up change, which is either immediate or delayed. It is delayed when there is no sense of urgency and the costs of imposed change by headquarters exceed the costs of delay. Otherwise it will be immediate.

Section 2 presents the model. The results are presented in section 3. Several cases are presented in section 4 to illustrate the main ideas. Section 5 contrasts the above arguments and their implications with diverse strands in the literature. Finally, section 5 provides some conclusions.

2 Model

A two period game of complete information and endogenous commitment is presented to illustrate the claims of section 2. Both periods consist of three stages. The decision regarding organizational change is taken in the first stage of the first period. The game ends when it is decided to implement organizational change. A bargaining (sub)game in the spirit of Rubinstein (1982) starts between the two parties when the choice in the first period is not to change the organization.

The fruits of organizational change are normalized to one. The proposer formulates a proposals to divide the surplus and this is either accepted or rejected by the responder. It is assumed without loss of generality that person 1 is the proposer. The game ends when the proposal is accepted. If the proposal is rejected, then the game moves to the second period. Figure 2 represents the sequence of moves in the first period. The first (second) component of each vector represents the payoff of person 1 (2).¹ Imposed organizational change by headquarters is reflected by the choice Y(es), whereas no imposed organizational change is reflected by N(o). The payoff of the parties will depend on δ and C , i.e. the costs of organizational change, when imposed organizational change is chosen by headquarters. It is assumed that the share of the surplus received by the two parties when organizational change is imposed is identical to the share of the surplus received when no organizational change is imposed. The costs of imposed organizational change are shared equally. If decision N doesn't result in delay, then the payoff of person 1 (2) when headquarters chooses Y is equal to the subgame perfect equilibrium value of s ($1-s$) minus half of the costs of imposed organizational change.

¹ A straightforward way to include the payoff of headquarters is to set it equal to a share ε of the pie which is up for division, where ε is close to 0. Person 1 and 2 furnish this amount equally. This specification secures the uniqueness of equilibrium. However, the payoff of headquarters is left out because it simplifies notation and it would not enhance the understanding of the results.

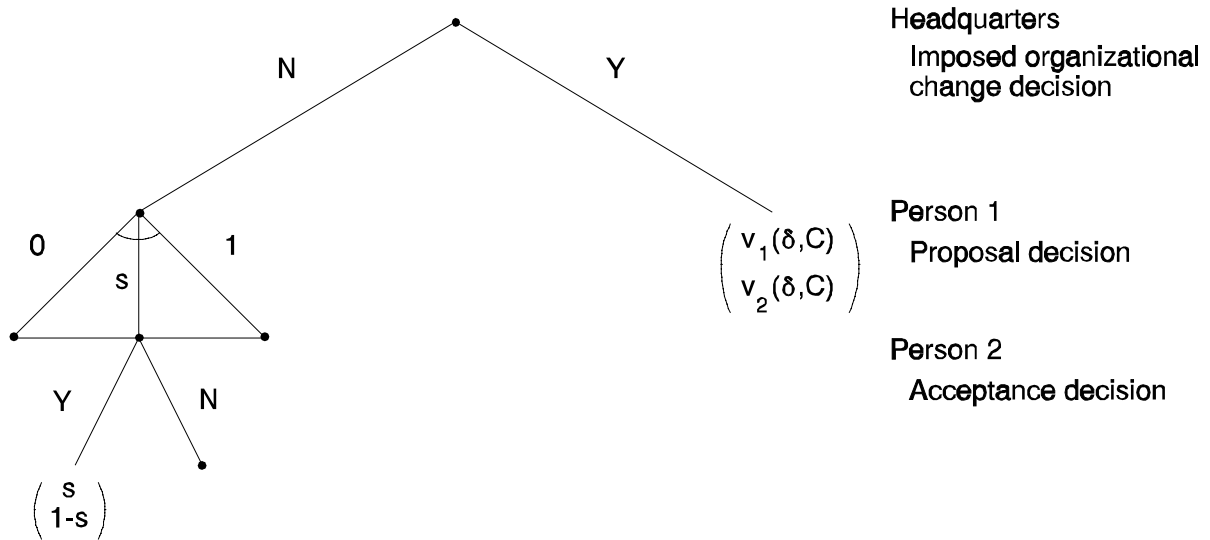


Figure 2: Extensive form of the first period

A straightforward way to include the payoff of headquarters is to set it equal to a share ε of the pie which is up for division, where ε is close to 0. Person 1 and 2 furnish this amount equally. This specification secures the uniqueness of equilibrium. However, the payoff of headquarters is left out because it simplifies notation and it would not enhance the understanding of the results.

Nature determines first who will be the proposer and responder in this final period. This is done randomly and each party is equally likely to be assigned the role of proposer. The proposer chooses a division of the pie and the responder either accepts or rejects it. The game will end after the decision of the responder because the deadline has been reached. The payoffs are determined by the feature of endogenous commitment and a discount factor $\delta \in [0, 1]$, which is taken to be the same for both players. Endogenous commitment (Stahl, 1990 and Fershtman and Seidmann, 1993) entails that a proposal will have a lower value for the responder when it offers less than the highest offer in the past. It is assumed that the value of an offer for the responder is reduced by L when the offer is worse than the best offer in the past. Both parties earn 0 when the proposal is rejected in the final period. Figure 3 reflects the second period. Endogenous commitment is represented in the payoffs by the indicator function $I_{(s,1]}(r)$.¹ The definition of the indicator function is

¹ Fershtman and Seidmann use the specification $\delta r(1 - I_{(s,1]}(r))$ as payoff for person 2 when person 1 proposes in the second period.

$$I_{(s,1]}(r) = \begin{cases} 1 & , r \in (s,1] \\ 0 & , \text{otherwise.} \end{cases}$$

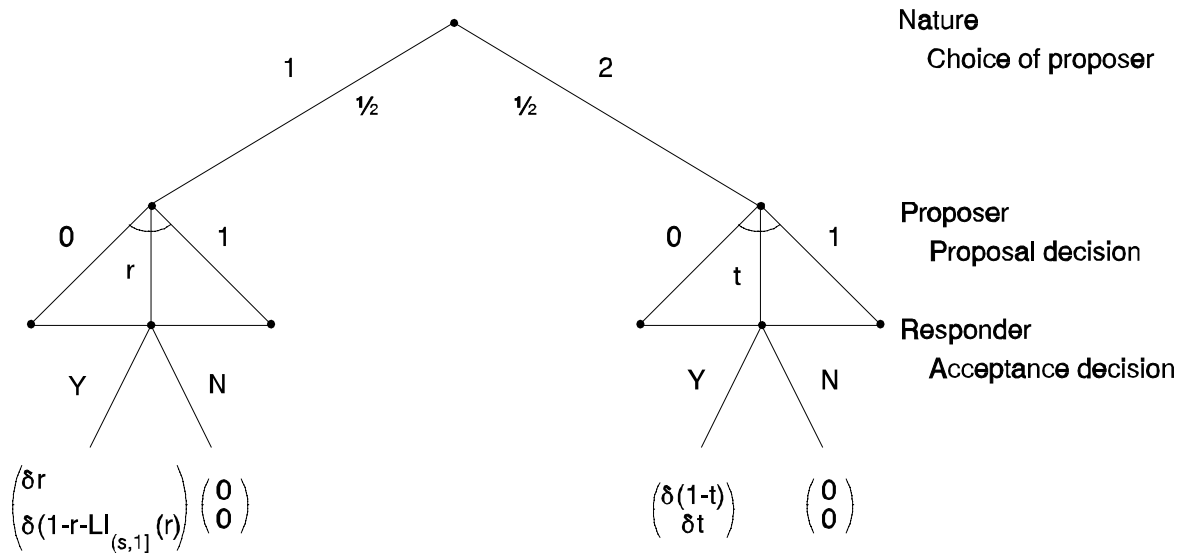


Figure 3: Extensive form of second period

The subgame perfect equilibrium (SPE) of this game is determined by backward induction. We start therefore with period 2, given the decisions in period 1. Suppose person 1 proposes in period 1 that he gets a share s . The offer to person 2 is therefore $1-s$. If person 1 is assigned the role of proposer in period 2, then the feature of endogenous commitment limits the range of offers which will be accepted in the second period by person 2. The subgame perfect equilibrium strategy in the second period when person 1 is assigned the role of proposer is

$$\text{person 1: } r = \begin{cases} s, & s > 1-L \\ 1-L, & s \leq 1-L \end{cases}$$

person 2: yes.

If person 2 is assigned the role of proposer in period 2, then he will claim and get the whole surplus by asking $t = 1$, because person 1 has not received an offer in the previous period and has therefore no vested interest (endogenous commitment) built up. Person 2 knows in the first period that his discounted expected payoff in the second period is $(1-s+1) \delta/2 = s\delta/2$ when $s > 1-L$ and $(L+1) \delta/2$ when $s \leq 1-L$. This is reflected in figure 4.

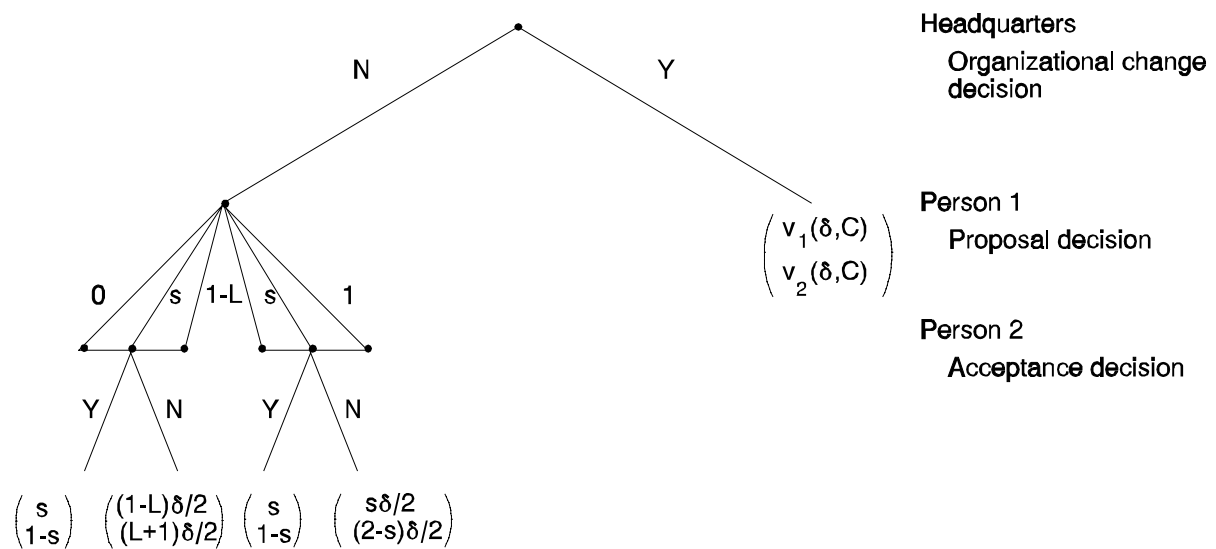


Figure 4: Extensive form with second period SPE payoffs

3 Equilibrium and comparative statics

The appendix shows the calculation of the subgame perfect equilibrium. It proceeds in the familiar way, i.e. the method of backward induction is used. Three types of subgame perfect equilibria are distinguished. First, delay will emerge in the bargaining process when it is not very costly, i.e. the discount factor is close to 1. Headquarters will tolerate this delay when the costs of imposed organizational change outweigh the benefits of preventing delay. Second, organizational change will be imposed by headquarters when delay is not costly and the cost associated with imposed organizational change are even lower. Imposed organizational change is a way to break endogenous commitments. Finally, immediate agreement occurs voluntarily when the cost of delay are large, i.e. organizational change is urgent. The responder in the first period is in these circumstances not able to elicit an endogenous commitment which improves his bargaining position in the second period to such an extent that it compensates for the costs of delay. Headquarters will not intervene in order to prevent the costs C .

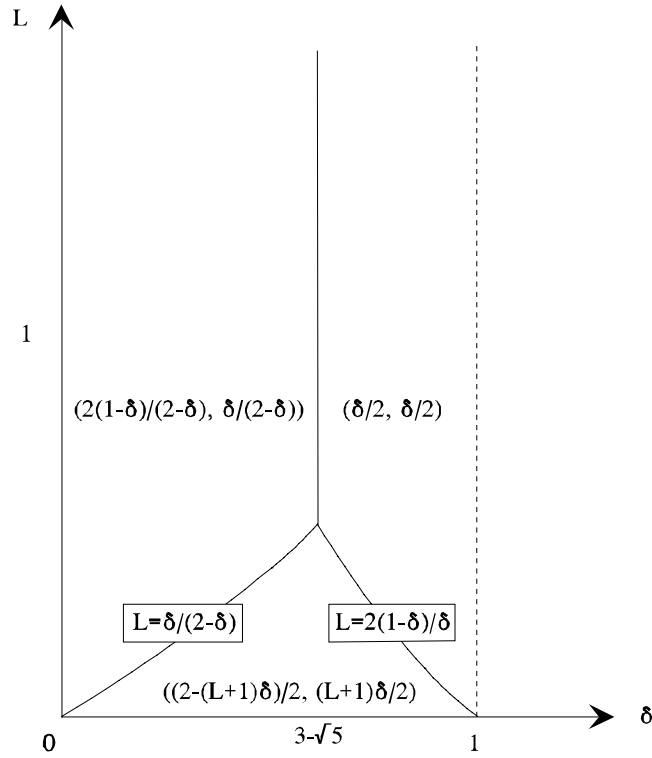


Figure 5: Subgame perfect equilibrium payoffs when headquarters has chosen N.

Figure 5 presents the subgame perfect equilibrium payoffs of person 1 and 2 as a function of the parameters δ and L , when headquarters has chosen N. The first (second) term in brackets in each region presents the expected payoff of person 1 (2).

Proposition 1: A decrease in δ never causes a switch from immediate change to delayed change.

An increase in the urgency of the situation makes delay more costly. The parties respond by choosing actions in the first period which result in immediate change.

Proposition 2: The share of the surplus received by person 1 doesn't increase when L increases.

The share of the surplus received by person 1 is not influenced by the level of L when $s > 1-L$ is chosen. An increase in the reputation loss L never reduces the share of the surplus received by person 2 when $s \leq 1-L$, because bids r of person 1 are limited to $1-L$ in order to get acceptance in the second period when person 1 tries to formulate bids in the first period which

are accepted. Person 1 has to take this into account when s is chosen, which will reduce the level of the subgame perfect equilibrium choice of s in the first period.

Proposition 3: An increase in L never causes a switch from delayed change to immediate change.

This follows from proposition 2. If $\delta > 3 - \sqrt{5}$ and L increases above $\delta/(2-\delta)$, then L doesn't influence the share received by person 1 anymore because the subgame perfect equilibrium of the case $s > 1-L$ applies. If $\delta > 3 - \sqrt{5}$, then an increase in L will reduce the share of the surplus received by person 1 when L is small. Further increases in L will force person 1 to lower s to such an extent in order to get acceptance in the first period that delay is preferred.

Proposition 4: The share of the surplus received by person 1 doesn't increase when δ increases.

A decrease in urgency increases the payoff associated with delay for person 1 and 2. Person 1 has therefore to lower its bid s in order to get acceptance in the first period.

Proposition 5: The first-mover position of person 1 is not attractive (in terms of payoffs) when $(1-\delta)/\delta < L < \min(\delta/(2-\delta), 2(1-\delta)/\delta)$ or $\delta \in (.5, 3 - \sqrt{5})$ and $L > \delta/(2-\delta)$.

The driving forces behind this result are the propositions three and four. An increase in δ as well as L reduce the attractiveness of being in the position of person 1. The lower bound $(1-\delta)/\delta$ is equivalent to $(2-(L+1)\delta)/2 < (L+1)\delta/2$. The upperbound $\min(\delta/(2-\delta), 2(1-\delta)/\delta)$ excludes the areas $L > \delta/(2-\delta)$ and $L > 2(1-\delta)/\delta$. The second subset of the parameter space is obvious.

The results have been presented in terms of the payoffs of person 1 and 2 in figure 5. It is assumed in figure 5 that headquarters has chosen N . This is also the subgame perfect equilibrium strategy of headquarters when the payoffs in figure 5 add up to 1, i.e. there is no delay when headquarters does not intervene. N is the subgame perfect equilibrium strategy in these circumstances because costs C are prevented. The area in figure 5 where each party earns $\delta/2$ entails delay when headquarters chooses N . Headquarters will impose organizational change when δ and L are above a certain value and the costs of imposed change are not too large, i.e. $C \leq 1-\delta$. Value is added by headquarters only in these circumstances. Figure 6 reflects the predictions in terms of the value added by headquarters for all possible parameter

constellations.

| | $C \leq 1 - \delta$ | $C > 1 - \delta$ |
|------------------------------------------------------------|---------------------|------------------|
| $\delta \leq 3 - \sqrt{5}, \quad L \geq \delta/(2-\delta)$ | 0 | 0 |
| $\delta > 3 - \sqrt{5}, \quad L \geq 2(1-\delta)/\delta$ | $1 - \delta - C$ | 0 |
| $L < \delta/(2-\delta), \quad L < 2(1-\delta)/\delta$ | 0 | 0 |

Figure 6: Value added of headquarters

A final way of presenting our results is in terms of welfare. The welfare characterization is provided in terms of transaction costs. They are defined as the difference in surplus between the Pareto-efficient outcome and the equilibrium outcome. Transaction costs are zero when the situation is urgent or the loss of reputation is small. Organizational change will occur immediately, without interference of headquarters. Transaction costs are C when headquarters imposes organizational change. There will be no delay in situations with lower costs of imposed organizational change than the costs of delay, but this comes at a cost C . Finally, transaction costs are equal to $1-\delta$ in circumstances where delay is less costly for the organization than imposed organizational change. Figure 7 presents the size of the transactions costs as a function of the parameters regarding urgency, loss of reputation and costs of organizational change parameters.

| | $C \leq 1 - \delta$ | $C > 1 - \delta$ |
|------------------------------------------------------------|---------------------|------------------|
| $\delta \leq 3 - \sqrt{5}, \quad L \geq \delta/(2-\delta)$ | 0 | 0 |
| $\delta > 3 - \sqrt{5}, \quad L \geq 2(1-\delta)/\delta$ | C | $1 - \delta$ |
| $L < \delta/(2-\delta), \quad L < 2(1-\delta)/\delta$ | 0 | 0 |

Figure 7: Transaction costs

The policy implication regarding endogenous commitment is that it is valuable to create bargaining circumstances in which no public announcements are (allowed to be) made. It seems that this is understood in both business and politics. The press is often completely

blocked from information regarding the results during a negotiation process. Only the final outcome is communicated. The above model suggests that this is a surplus generating practice when the situation is not perceived as urgent and the loss of reputation associated with accepting a bid which is lower than a public bid received in the past is above a certain level (,i.e. $L > 2(1-\delta)/\delta$).

4 Cases

Several case studies are presented in this section regarding the environment in which a particular type of organizational change emerges. Cases regarding the establishment of new departments as an example of imposed organizational change are the focus of analysis in subsection 4.1. Cases regarding delayed organizational change are treated in subsection 4.2. Finally, subsection 4.3 treats cases in which voluntary organizational change has occurred.

4.1 Imposed change

There are many examples of enterprises reorganizing themselves by creating new departments or merging existing departments. Some examples regarding the creation of new departments are the splitting up of an existing department into a production unit and a research unit. The New York Times (1984) reported that 'For the first time since the early days of the auto industry, the General Motors Corporation has bought a minority interest in a small company rather than swallowing it whole'. Another example is Westinghouse and its experience with the high tech firm Unimation. The Wall Street Journal (1984) reported about researchers of Westinghouse that 'They learned that their financial incentives would be lower under Westinghouse and they felt the time it took to make business decisions would lengthen'. Williamson (1985) has reported about similar cases and concludes that 'large companies are becoming increasingly aware that the bureaucratic apparatus they use to manage mature products is less well-suited to supporting early stage entrepreneurial activity'. Another example of the creation of a new unit comes from my own department at Tilburg University. An evaluation of the economics research done in the Netherlands revealed that mainstream economic theorizing was underrepresented. Tilburg university decided to fill this gap by creating a new departmental unit to carry out this kind of research rather than doing this in the existing groups. CentER was created in 1988. Our model predicts that the environment in which new research (and development) departments emerge is characterized by low costs of

delay from the viewpoint of the local parties and even lower costs of setting up these new departments. These new units are created by headquarters.

A recent case in my department is the imposed merger between two groups. The economics department at Tilburg University consisted until recently of six groups: business economics, CentER, econometrics, information sciences, economics and social economics². Changing student interest have created financial problems for the last two groups. This was officially recognized by the budgeting system in 1988. The last group has not been able to deal with this situation effectively and the prospects for doing so are not bright. One reason is that the situation is not viewed as urgent by the persons involved, because they don't carry the financial problems. The board of (three) directors of the department has formulated a proposal in which the two groups are urged to work out a voluntary merger. This proposal was rejected by social economics and reluctantly accepted by economics. The rejection was motivated by stressing the value of remaining a separate group in order to preserve their own identity. Social economics was abolished by the board of directors in 1995. The costs of this change are almost nothing, because it only entails some administrative adjustments.

4.2 Delay

A dominant approach for understanding delay is nowadays the principal-agent framework with a conflict of interest and asymmetric information. Jensen (1993) is a prominent contributor to this literature. The main source of delay is in his view due to the failure of corporate internal control systems, especially headquarters, to deal effectively with asymmetric information problems. However, it seems that he is somehow uneasy with his account of companies which failed to implement some kind of organizational change when he writes (p. 848):

'Even when managers do acknowledge the requirement for exit, it is often difficult for them to accept and initiate the shutdown decision. For the managers who must implement these decisions, shutting plants or liquidating the firm causes personal pain, creates uncertainty, and interrupts or sidetracks careers. Rather

² Economics consists of micro economics, monetary economics, public finance and international trade. Social economics consists of regional economics, labor economics, development economics, political economy and economic history.

than confronting this pain, managers generally resist such actions as long as they have the cash flow to subsidize the losing operations'.

An analysis focussing on vested interests instead of information problems provides another explanation for some of the observations by Jensen. Kodak is an example. It recently

'appointed a chief financial officer well-known for turning around troubled companies. (Unfortunately he resigned only several months later - after, according to press reports, running into resistance from the current management and board about the necessity for dramatic change)' (Jensen, p. 853).

Our model predicts that delay will occur in situations which are not urgent. Especially organizations with free cash flow seem to be vulnerable to the emergence of this phenomena. Jensen (p. 853) reports that some of these funds were used by Kodak and IBM in their heydays to buy labor peace.

4.3 Immediate, voluntary change

Jensen provides also some counterexamples to his proposition about the failure of corporate internal control systems. However, they seem to fit our model in that immediate, voluntary change is predicted in situations which are perceived as urgent.

Jensen (p.853) observes that 'GE has accomplished a major strategic redirection, eliminating 104,000 of its 402,000 person workforce (through layoffs or sales of divisions) in the period 1980 to 1990 without the motivation of a threat from capital or product markets. But there is little evidence to indicate this is due to anything more than the vision and persuasive powers of Jack Welch rather than the influence of GE's governance system'. Another example is Sealed Air. CEO Dermot Dumphy 'created a crisis by voluntarily using the capital markets in a leveraged restructuring' (Jensen, p.854). These CEO's definitely imposed change, but they also seem to have been able to change the perception of local parties regarding the urgency of change of the situation they are in, which triggered all kinds of local initiatives.

5 Related literature

The explanation for imposed organizational change in this paper is that it provides an inexpensive way for headquarters to break endogenous commitments in order to prevent costly delay. Delay will occur when its costs for the organization are lower than the costs of organizational change imposed by headquarters, despite the availability of all relevant information to the involved parties. Some assumptions underlying these results are complete information, conflicting interests, independent preferences, time consistent decisions and unbounded rationality. It is attractive that the above results are obtained within a model with these simplifying assumptions. However, other relevant organizational change problems and solutions emerge in environments in which these assumptions do not hold. We will address several of them in order to provide some guidance to related literature as well as a positioning of the above model in the literature³. Results will be discussed with respect to commitment problems, asymmetric information, coordination problems, voting procedures, bounded rationality, time inconsistent decisions, framing and changing utility functions.

5.1 Commitment problems

Organizational change will always emerge in the above model. The implementation occurs immediately or with one period delay. Nothing has been said about the process of implementation and the possibility of commitment problems in this process. Admati and Perry (1991) show that this is also not necessary. It is always possible to construct an implementation procedure with the same alternating move structure as in the above setup such that the promises of both parties to contribute in the costs of the project are credible. A project can always be implemented as long as the net benefits are positive, regardless the amount of costs involved. (It is of course required that the parties are committed to this procedure.) The contribution procedure specifies that both parties take turns in contributing small amounts of costs till the total amount of costs has been reached. This result implies that the amount of the costs does not have to be an impediment to organizational change as long as the benefits are larger than the costs.

Coricelli and Milesi-Ferretti (1993) model a potential problem with radical ('big bang') programs, even though it is attractive from a production efficiency standpoint. Their argument

³ Contributions to economics are highlighted. Rumelt (1995) is good source for a characterization of the issues regarding inertia and change in general.

is related to the wealth constraint branch of the Coase program in that the government is believed to step in with subsidies when there are too many layoffs, which can make hard budget constraints non-credible. This commitment problem is more likely to occur when the reform program is more drastic. A drastic change increases the probability that payoffs are independent of their activities, i.e. the likelihood of a bad outcome is high, but workers believe that they will not carry the burden of a performance below a certain level. Employees put in effort to make organizational reform a success. It is argued that a 'big bang' program may on average result in lower levels of effort than a more gradual reform program. Workers know that the likelihood of a positive relationship between their activities and payoffs is high when the organizational reform process is gradual. This will result in more effort and increases the probability that organizational change will be successful.

5.2 Asymmetric information

There are various explanations for organizational change from an incentive perspective in an environment with asymmetric information. Ickes and Samuelson (1987) propose that job transfers in complex organizations are used to thwart the dynamic moral hazard problem of the ratchet effect. Scharfstein and Stein (1990) use an adverse selection argument to explain herd behavior in investment decisions. Deviant investment behavior is considered by the labor market as a bad signal regarding an unknown characteristic of the manager. Good managers may therefore follow the crowd rather than implement changes when their reputation as a good decision maker is at stake, even when they know that the change is desirable. Delay will be the result when the associated costs are not too large. Boot (1992) also uses a reputation argument and argues that there is too little divestiture in equilibrium. Only managers of targets with intermediate levels of asset specificity have to consider the takeover threat credible. Cramton (1992) explains delay in bargaining by two-sided uncertainty.

Meyer, Milgrom and Roberts (1992) advance an influence cost hypothesis regarding organizational change. They observe that the majority of divestitures concerns badly performing departments. These departments face stronger incentives to engage in inefficient rent seeking activities than relatively well performing departments. This is prevented by divestiture. The influence approach may be viewed as a contribution to the wealth constraint branch of the Coase program.

Dewatripont and Roland (1992) advance an adverse selection hypothesis regarding the speed of transition. Beneficial change may be hindered because asymmetric information

regarding the value of vested interests makes the required compensation payments too costly in order to get a proposal adopted which involves change for everybody at the same time. The optimal reform proposal is usually gradualism, i.e. an intertemporal compensation policy is in general least costly.

5.3 Coordination problems

Identical and interdependent preferences in an environment with asymmetric information are adopted by Farrell and Saloner (1985) to explain delay. Unattractive outcomes may emerge because a critical mass of persons is needed to establish the move to a superior outcome. Communication between the parties alleviates this coordination problem, but not completely. Our model doesn't have a role for communication because everything is known. Farrell and Saloner (1986) have extended this argument to situations in which preferences are not identical anymore. It becomes important how many persons adhere to the old organization compared to those favoring a change. Delay results when too many persons are attached to the current situation. Notice that the model of this paper does not consider the number of people favoring a change to be the crucial variable, but the urgency of the situation, the loss of reputation and the costs of imposed organizational change.

Bolton and Farrell (1990) examine the trade-off between the value of local, private information and the costs of duplication or delay. Centralized decision making is predicted when coordination problems feature more prominently than local information. These situations are characterized as urgent and the value of centralization is derived from its ability to prevent duplication or delay. This model seems to fit the observation that market systems are adopted during times of peace, whereas societies switch to centralized decision making during war time. Our model predicts the opposite regarding centralized decision making in urgent situations, because there is a local conflict of interest and a clear sense of the direction of desirable change, i.e. there is no coordination problem in the form of duplication or delay.

5.4 Voting procedures

Fernandez and Rodrik (1991) focus on the importance of the voting procedure when there is uncertainty regarding the gains and losses of reform. They show how individual specific uncertainty can distort aggregate preferences. Uncertainty regarding the identity of gainers and losers of the reform may drive so many individuals into opposing it that they

overrule those in favor of a change. The opposite may also happen, i.e. a bad reform is adopted. A status quo bias is present because implementing a reform generates new information, i.e. the new information may result in repeal of the reform in a second vote, whereas rejecting a reform generates no new information, which implies that the status quo prevails. The source of the problem is that the weight of individual preferences regarding reform is not perfectly aligned with the allocation of voting power in the aggregation procedure. This suggests the value of autocratic decision making, which is often characterizing the internal decision making regarding reform in firms. The leadership may therefore adopt a reform which is met with ex ante hostility, due to many vested interests, but receives ex ante support of the people involved. Uncertainty regarding the gains and losses of reform is not considered in our analysis.

5.5 Bounded rationality

Heiner (1988) provides an explanation for delay in adjustment processes to changing situations from a bounded rationality perspective. The cognitive capabilities of a person are usually smaller than the complexity of the problem. Delay is attractive for such a person because it reduces the probability of mistakenly adjusting either too soon or in the wrong direction or at the wrong rate. Our model obtains delay in a model with complete rationality.

5.6 Time inconsistent decisions

This paper remains in the traditional domain of economics by considering time consistent behavior, instant recognition of problems (i.e. unbounded rationality) and fixing the utility function of individuals. However, it is not denied that valuable contributions to the subject of this paper have been made along lines of thought outside this domain. Individuals make dynamically inconsistent decisions in the model of Akerlof (1991) because present costs of decisions are more salient in comparison with future costs. Tasks will be procrastinated until tomorrow without foreseeing that when tomorrow comes, the required action will be delayed again. One way for management of reducing these costs is to set schedules and deadlines.

5.7 Framing

The framing of decisions and the valuation of losses and gains has been studied

extensively by Tversky and Kahneman (1992). Their experiments show that small losses loom much larger than small benefits. This makes it important to choose the reference point (i.e. frame) to which future payoffs, either positive or negative, are compared. Endogenous commitment can be interpreted as endogenizing the frame or reference point. The rejection of an offer creates a new reference point to which future offers are compared. A current offer which is worse than the best offer in the past creates a disutility which eliminates any positive benefit of the receiver in the current offer.

Another implication is that the spacing in time of costs and benefits matters. It suggests that all the costs be imposed at once, whereas benefits are spread out over time. Costs are to be interpreted as not compensating the losers of organizational change for their less attractive position in the new organization. Some support for this hypothesis is the claim of Machiavelli (1513) that 'unjustices have to be committed all at once, then they are experienced less: and benefits have to be given little by little, then they taste better'.

5.8 Changing preferences

An extensive organizational behavior literature has been devoted to the recognition and awareness aspects of change (Lewin, 1947). Individuals have to be convinced that a change is desirable. A gradual process of transition is usually advocated. The objective seems to be to change the attitude of people towards organizational restructuring by trying to change the preferences (or utility function) of the members of the organization. Traditional economic theory treats preferences as being fixed over time, whereas other social sciences are much less inclined to make such an assumption. Issues like participation, education, communication and indoctrination play therefore an important role in psychology and sociology.

6 Conclusions

A model of organizational change is presented with complete information, costs of organizational change, costs of delay, endogenous commitment and a deadline. It is shown that two scenarios for enterprise restructuring emerge when the change is not urgent. It is delayed (imposed immediately) when the costs of imposed change are higher (lower) than the costs of delay. The value of imposed organizational change is that it breaks endogenous commitments. Organizational change will occur immediately and voluntarily when it is urgent. Headquarters only adds value by imposing organizational change in order to break

endogenous commitments in situations which are not perceived as being urgent and entail low costs of change.

The focus has been on the character of organizational change and on identifying situations in which headquarters adds value. It was not intended to provide a comprehensive account of these phenomena, but to limit attention to a particular aspect in order to shed another light on several empirical phenomena. Extensions to advance our knowledge and understanding of organizational change and headquarters can therefore be readily pursued in many directions, both theoretically and empirically.

second period: Nature chooses person 1:

person 1: $r=s$

person 2: yes

Nature chooses person 2:

person 1: yes

person 2: $t=1$.

If $L \leq \delta/(2-\delta)$: first period: person 1: $s=1$

person 2: no

second period: Nature chooses person 1:

person 1: $r=s$

person 2: yes

Nature chooses person 2:

person 1: yes

person 2: $t=1$.

The second case consists of $s \leq 1-L$. The proposal s by person 1 is accepted in the first period by person 2 when

$$1 - s \geq (L+1) \delta/2$$

$$\Leftrightarrow s \leq (2-(L+1) \delta)/2.$$

Person 1 gets acceptance in the first period and maximizes his payoff by asking $(2-(L+1)\delta)/2$ when feasible bids $(2-(L+1)\delta)/2 < 1-L$, which is equivalent to $L < \delta/(2-\delta)$, are considered. The alternative is to elicit a rejection. The payoff maximizing proposal achieving this is asking $s=1-L$ in the first period. Person 1 will bid $r=1-L$ in the second period. The expected discounted payoff for person 1 by asking $s=1-L$ is $(1-L)\delta/2$. Person 2 will earn $(L-L+1)\delta/2=\delta/2$ when the bid $s=(2-(L+1)\delta)/2$ is rejected, which is less than the payoff $(L+1)\delta/2$ when it is accepted in the first period. Person 1 prefers agreement in the first period above delay when

$$(2-(L+1)\delta)/2 \geq (1-L)\delta/2$$

$$\Leftrightarrow \delta \leq 1.$$

If $L \in [0, \delta/(2-\delta)]$ and $L > 2(1-\delta)/2$, then the subgame perfect equilibrium choice of s emerges in the case $s > 1-L$, i.e. $s=1$. If $L > \delta/(2-\delta)$ and $\delta \in [0, 3-\sqrt{5}]$, then the subgame perfect equilibrium choice of s is realized in the case $s > 1-L$ when

$$1-L < 2(1-\delta)/(2-\delta) \\ \Leftrightarrow L > \delta/(2-\delta).$$

So, $s=1-L$ is never a subgame perfect equilibrium strategy when $L > \delta/(2-\delta)$ and $\delta \leq 3-\sqrt{5}$. Finally, if $L > \delta/(2-\delta)$ and $\delta \in (3-\sqrt{5}, 1]$, then the subgame perfect equilibrium choice of s emerges in the case $s > 1-L$ when

$$\delta/2 \geq 1-L \\ \Leftrightarrow L \geq 1-\delta/2.$$

The curves $L=1-\delta/2$ and $L=\delta/(2-\delta)$ intersect at $\delta=3-\sqrt{5}$, i.e. $s=1-L$ is not a subgame perfect equilibrium strategy.

The assumption regarding the division of the benefits and costs of organizational change implies that

$$\begin{aligned} v_1(\delta, L, C) = & \begin{aligned} & 2(1-\delta)/(2-\delta) - C/2 & , \delta \leq 3 - \sqrt{5}, L \geq \delta/(2-\delta) \\ & (1-C)/2 & , \delta > 3 - \sqrt{5}, L \geq 2(1-\delta)/\delta \\ & (2 - (L+1)\delta)/2 - C/2 & , L < \delta/(2-\delta), L < 2(1-\delta)/\delta \end{aligned} \\ v_2(\delta, L, C) = & \begin{aligned} & \delta/(2-\delta) - C/2 & , \delta \leq 3 - \sqrt{5}, L \geq \delta/(2-\delta) \\ & (1-C)/2 & , \delta > 3 - \sqrt{5}, L \geq 2(1-\delta)/\delta \\ & (L+1)\delta/2 - C/2 & , L < \delta/(2-\delta), L < 2(1-\delta)/\delta \end{aligned} \end{aligned}$$

It follows immediately that the subgame perfect equilibrium of the whole game entails organizational change if and only if $C \leq 1 - \delta$, $\delta > 3 - \sqrt{5}$ and $L \geq 2(1-\delta)/\delta$. Figure 1 summarizes the results by defining low urgency as $\delta > \max(3 - \sqrt{5}, 2/(2+L))$ and low costs as $C \leq 1 - \delta$.

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